State of Maine River Flow Advisory Commission Report on Current Hydrologic Conditions March 2, 2006

Overview:

The spring meeting of the River Flow Advisory Commission took place Thursday, March 2, 2006. The Commission meets annually in late winter to share information, examine potential for spring flooding and to renew operational protocols. Such factors as stream flow, long-term weather forecasts, snowpack, river ice conditions and reservoir levels are reviewed. This report summarizes the information presented on current hydrologic conditions.

Throughout this report, Internet addresses are listed for each category of information. The River Flow Advisory Commission web site provides a portal to all these different sites. That web site address is **www.maine.gov/rfac**. This site provides a connection to the ever-changing information critical to monitoring flood potential in the state.

At the end of the report, additional sources are provided for further information.

Current Conditions and Flood Potential:

Stream Flow and Headwater Storage Levels:

As of the end of February, stream flows were in the above normal range for all of Maine. Stream flows in January reached historic highs.

River basin managers report headwater storages at well above normal pre-spring drawdown levels. Without the normal amount of snowpack to count on to refill the storages, managers are not following their usual drawdown schedules. They are observing conditions closely, and will attempt to draw down enough to be able to hold back water in a potential flooding event, without jeopardizing their capacity to meet summer water needs.

Ground Water

Ground water is above normal in all parts of the state; at some sites record highs have been set. Ground water recharge usually peaks later in the spring, as snow melts, before slowly falling through the summer. However, some monitoring locations appear to be peaking now. It is too early to tell how or if this will affect water levels and supplies later in the year. USGS will continue to monitor ground water closely.

For further information on stream flow and ground water:

| USGS Water Resources of Maine | me.water.usgs.gov (Hydrologic Conditions | |
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| | Section) | |

Ice Conditions:

River ice across the state, where measured by the USGS, is well below normal for the time of year in central and southern Maine. Officials in Franklin County report ice on sections of the Sandy River, but do not expect problems to develop. Although frazil ice has been forming in central Maine rivers over the last week because of the cold temperatures, the potential for ice jam flooding in central to southern

Maine is considered to be below normal. However, a small freeze-up jam caused the Kennebec River at Augusta to rise suddenly in the past week.

In far northern Maine, rivers remain ice covered, though the ice thickness is below normal. The potential for ice jam flooding in far northern Maine is **above** normal.

Emergency managers are urged to report observed ice jams or ice movement to the National Weather Service and MEMA. Ice jam formation or movement cab result in rapid water rise and necessitate quick action protect life and safety.

The USGS maintains a live web camera on the Kennebec River in Augusta to provide remote "eyewitness" observation of ice and water movement. The web cam images are accessible on the Internet at http://me.water.usgs.gov

Ice-breaking by the US Coast Guard in the lower Kennebec will not be required this year. The USCG has done conducted breaking in the Penobscot earlier in the winter.

For more information on ice conditions:

| Northeast River Forecast Center | www.weather.gov/nerfc |
|---------------------------------|-----------------------|
| USGS | me.water.usgs.gov |

Snowpack:

A full statewide snow survey was conducted February 27th through March 1st. In all but far northern Maine, water equivalents are in the lower 10% to 25% of historical averages. Water equivalents in the north are in the normal range (25% to 75% of historic averages), with pockets above normal. Water equivalents ranged from a trace along the coast, to 3 to 5 inches along a belt from Rumford to Houlton, to 9 to 11 inches in the St. John Valley in far northern Maine.

The Maine Cooperative Snow Survey conducts surveys at sites across Maine from January until the snowpack is gone from the headwaters of our major rivers. Cooperators measure snow depth and water content at specific sites. The critical measurement "snow water equivalent" quantifies the amount of water that could potentially run off into the river basins. Snowmelt alone does not generally cause flooding in Maine, but can add to the runoff caused by rainfall.

Contributors to the Maine Cooperative Snow Survey include Federal and State agencies, hydroelectric power and paper companies and Canadian and New Hampshire environmental agencies.

For more information on snow survey data, updated weekly with every survey through the spring:

| Maine Cooperative Snow Survey | www.maine.gov/mema/weather/snow.htm |
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Weather Outlook:

Temperatures will remain slightly below normal in the short term, with little significant precipitation.

Longer term forecasts show equal chances of above or below normal temperatures and precipitation.

Flood Potential:

Snowpack is below normal for the time of year in most of the state, while stream flows and storages are well above normal. In northern Maine, where rivers are still ice bound, flood potential is near normal, but potential for ice jam flooding is above normal. In the rest of the state, flood potential is near normal, with potential for ice jam flooding below normal.

The most important single factor in determining the severity of flooding is rainfall, how much and in how short a period of time. Major flooding on Maine rivers does not generally occur from snowmelt alone. However, ice jam flooding is a concern as long as large amounts of ice remain in Maine's rivers. Ice jam flooding cannot be forecast. Local observation is critical as ice begins to break up and move. Ice jams can cause sudden flooding above the jam, as the water backs up, and below the jam if it breaks and releases a large amount of water.

The National Weather Service Forecast Offices in Caribou and Gray will issue Flood Potential Statements every two weeks throughout the spring. These reports will examine all current hydrologic factors and give an overall assessment of flood potential. Both offices are scheduled to issue Flood Potential Statements on Friday, March 3.

For more information on flood potential and for flood watches and warning should they arise:

| NWS Gray | www.weather.gov/gray |
|-------------------------------|--------------------------------------|
| NWS Caribou | www.weather.gov/caribou |
| NWS Flood Forecasts/MEMA site | www.maine.gov/mema/weather/flood.htm |

Preparedness and Mitigation:

Flood Insurance and Floodplain Management:

The State Floodplain Management Program stresses that flooding is always a threat to properties located within a floodplain, but even more so during winter's icing and spring rains. Many people believe that their homeowner's or business owner's insurance policy will cover any flood-related losses but unfortunately, these insurance policies DO NOT cover flood-related damages. In order to receive insurance protection related to flood damage, property owners and renters need to purchase a separate flood insurance policy. For more details on the policies available, owners and renters should contact their insurance agents. There is a **30-day waiting period, before a new policy goes into effect**.

As long as a community participates in the National Flood Insurance Program, food insurance is available for any property in the community. The average Flood Insurance premium in Maine is \$653 (a 3% increase over last year). Average coverage in Maine is \$162,368. The total coverage in Maine is \$1,185,290,500 Dollars (\$1.2 Billion). There were 7,280 Flood Insurance Policies in force as of January 2006. 93% of Maine's communities participate in the National Flood Insurance Program.

Additional assistance is available through the Maine Floodplain Management Program at the State Planning Office by calling 1-800-662-4545

The State Planning Office and the Maine Emergency Management Agency, in partnership with the Federal Emergency Management Agency (FEMA) have ongoing programs stressing "mitigation", or the reduction of risk from disasters. Flood mitigation can be as simple as moving perishable items out of a basement, elevating a furnace or improving drainage for a road that always floods. It can be as far-reaching as moving entire neighborhoods out of the floodplain.

Flooding is Maine's most costly hazard, affecting some community in the state every year, sometimes with disastrous results. Mitigation measures can not only save repair dollars in the long term, but may even make a community more attractive to development and business investment.

For more information on floodplain management and mitigation:

| State Planning Office, Floodplain | http://www.state.me.us/spo/flood |
|-----------------------------------|----------------------------------|
| Management Program | |

Preparedness and Safety:

Preparedness is key to minimizing the impact of flooding or any emergency. Individuals and families, businesses, schools and communities benefit from reviewing their vulnerability to flooding and ensuring that they have workable plans for dealing with the event. Everyone should stay aware of National Weather Service forecasts as the spring progresses, and talk to local officials and County Emergency Management Agencies if they have questions about flood preparedness in their communities, or how to build an emergency plan for family, business or school.

It is also critical during a flood event that all citizens heed all official warnings. The Commission noted that it's number one public safety concern is people driving through flooded roadways. During a flood no one should drive on submerged roads, as the stability of the road may have been severely damaged by flood waters. Highway crews will place signs and barricades to warn of flooded sections of road. Motorists who ignore these warnings and drive through flooded areas are gambling with their own safety and that of their passengers. Earlier this year, during flooding in Farmington, a truck driver had to be rescued by public safety personnel when he drove past a barricade into flood water.

Nationwide, most flooding deaths occur when vehicles are caught in flood water.

Motorists should always seek an alternate route around flooded areas and avoid taking unnecessary chances by driving through flooded areas. According to the National Weather Service, even 6 inches of fast-moving flood water can knock a person off his feet, and a depth of two feet will float a car. The National Weather Service has adopted the slogan: "Turn Around, Don't Drown" to accentuate this important message.

The National Weather Service Forecast Offices in Caribou and Gray will conduct a Flood Awareness Day on Friday, March 3. Both offices put out special flood preparedness and safety information. For more information on flood preparedness and safety:

| MEMA Flood Preparedness Page | www.maine.gov/mema |
|------------------------------|-------------------------------|
| NWS Caribou | www.weather.gov/caribou |
| NWS Gray | www.weather.gov/gray |
| County Emergency Management | www.maine.gov/mema/county.htm |
| Agencies | |

Important Factors for Springtime Floods (in order of relative importance):

- 1) **RAINFALL:** This is the most important factor in determining the magnitude of significant floods in Maine. If precipitation during April and May are normal and evenly distributed, then streamflow will be in the normal range. However, if significant rainfall occurs over a short period of time, flooding could result.
- 2) **SNOW COVER:** This is a secondary factor and can add to rainfall events. As the snow pack becomes more "ripe" (nearly saturated), it can melt quickly and significantly add to a flood peak. The most accurate measurement of snow cover is "snow water equivalent". Snow water equivalent is the amount of liquid water contained in the snow. Snowmelt alone should not produce major floods.
- 3) RIVER ICE: Ice jams can cause increased damage by temporarily blocking rivers and streams and causing higher water levels behind the jam. Peak flows downstream increase when jams break up and quickly release stored water.
- 4) **TEMPERATURE:** Warm days with freezing night temperatures allow a gradual melting and runoff of the snowpack. A sudden warm up, especially when coupled with significant rainfall, can send large amounts of runoff into rivers and streams.
- 5) **RESERVOIR STORAGE**: Maine's headwater storage reservoirs typically reach their annual low water levels in March. These reservoirs can moderate downstream flood peaks if rainfall occurs above the storage dams while the reservoir's water levels are down. The reservoir systems have limited

ability to moderate flood peaks in the lower parts of the river basins if large amounts of rain fall or if heavy rains fall downstream of the storage dams.

Conclusion:

The River Flow Advisory Commission found that as of March 2, despite normal hydrologic conditions, flood potential would be elevated by the end of the month due to continued cold temperatures. This "delayed spring" will carry winter risk factors for flooding farther into the spring, when the chance for flooding will be elevated.

The current conditions information in this report represents a "snapshot" of conditions throughout the state as of March 2, 2006. However, many new factors will influence the flood potential in Maine as the spring progresses.

National Weather Service and emergency management reports should be watched throughout the spring, and local officials should monitor the flood-prone areas for each community. In particular, rivers should be monitored closely as ice begins to break up and move, as ice-jam related flooding can arise quickly and have locally devastating impact. Property owners, business owners and renters in flood-prone areas should check their insurance coverage to be sure that they are protected against flooding damages.

The Maine River Flow Advisory Commission is composed of representatives from major river basin management operations, state agencies, federal agencies and the University of Maine. The Commission was originally formed after the spring floods of 1983 to improve the exchange of hydrologic information collected by the members, to review the data, and to provide information to emergency action agencies and the public. It was created in statute by the Legislature in 1997.

Because of the potential for elevated flood risk, the Commission will meet again on March 24th to assess conditions at that time.

Information Resources:

For additional information on particular aspects of this report, please contact:

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| Art Cleaves, Maine Emergency | Flood preparedness and mitigation | 207-624-4400 |
| Management Agency | | |
| Bob Lent, U.S. Geological Survey | Stream flow, ice conditions, snow | 207-622-8202 |
| | survey | |
| Tom Hawley, National Weather Service, | Flood potential for central and southern | 207-688-3216 |
| Gray, Maine | Maine; flood forecasting | |
| Mark Turner, National Weather Service, | Flood potential for northern and | 207-492-0180 |
| Caribou, Maine | eastern Maine; flood forecasting | |
| Marc Loiselle, Maine Department of | Snow survey | 207-287-2801 |
| Conservation | | |
| Lou Sidell, State Planning Office, | Floodplain management, flood | 207-287-8063 |
| Floodplain Management Program | insurance and mitigation | |

Links to further information on all sections of the report, updated as conditions change:

http://www.maine.gov/rfac

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